

# 2001 Aircraft-Stores Compatibility Symposium

March 5 - 8, 2001 | Sandestin Conference Center | Destin, Florida



*Symposium hosted by the  
Emerald Coast Chapter of  
the International Test and  
Evaluation Association*

March 5-8, 2001

Sandestin Conference Center  
9300 Hwy 98 West  
Destin, Florida  
850-267-8000

On behalf of the Emerald Coast Chapter, I invite you to participate in the 12th Aircraft-Stores Compatibility Symposium. This Symposium includes a variety of excellent guest speakers and an outstanding list of short technical papers to be presented on a wide range of engineering physics related to Aircraft-Stores Compatibility. Besides participation of industry and the three DoD Services, nine international research papers from five different countries will also be presented adding depth and balance. The Symposium also includes exhibits and workshops that will provide a good opportunity for professional growth and development.

The site of the Symposium is the Sandestin Conference Center, just East of Destin, Florida. This area is blessed with sunshine, beautiful sandy white beaches, and emerald colored water. We are expecting a large turnout, and the capacity of the facility is limited, so I encourage you to register early.

To cover the broad topic of aircraft-stores compatibility, the Symposium has been divided into four sessions: Aeromechanical, Structural Dynamics, Physical Integration, and Integration and Operations. Following these sessions, two separate workshops are scheduled. The first will discuss an Aircraft-Store Interface Standard that establishes physical and aeromechanical interface requirements necessary to ensure compatibility between aircraft, stores, and the associated suspension on release equipment. The second workshop will discuss the integration of the Store Certification process and the aircraft Operational Flight Program (OFP) process. As a broad range of military aircraft are highly dependent on accurate and timely information provided by OFP software, this workshop will focus on opportunities for optimizing OFP operability by expanding the integration of store-certification data.

To complement these sessions and workshops, we have an excellent speaker program organized. Our major speakers include: General (Ret.) Charles Horner, USAF, Former Commander, North American Aerospace Defense Command and U.S. Space Command, and Commander, Air Force Space Command. (Dinner Speaker on 6 March); Major General Michael C. Kostelnik, USAF, Commander, Air Armament Center, Eglin AFB, FL, (Keynote Speaker); Rear Admiral John V. Chenevey, USN, Program Executive Officer, Strike Weapons and Unmanned Aviation, Naval Air Systems Command, Patuxent River, MD, (Lunch Speaker on 6 March); Rear Admiral Timothy L. Heely, USN, Commander, Research Engineering Group, Naval Air Systems Command, Patuxent River, MD, (Keynote Speaker); Major General (Ret.) Steve McElroy, USAF, Raytheon Corporation, Tuscan, AZ., (Symposium Lunch Speaker on 7 March), and Ms. Judy Stokley, Program Director, Air-to-Air Joint Systems Program Office, Air Armament Center, Eglin AFB, FL, (Keynote Speaker).

With these sessions, workshops, and speakers in mind, this Symposium will be truly a memorable, learning, and enjoyable event. I look forward to seeing you there.

*Robert J. Arnold  
Symposium Chair*

# 2001 Aircraft-Stores Compatibility Symposium

March 5–8, 2001 | Sandestin Conference Center | Destin, Florida

## Program Schedule | Sandestin Conference Center

### Monday, March 5

8:00 am	Exhibitors Set Up
12 noon	Registration Desk Opens
4:30 pm	Registration Desk Closes
5:00 pm	Exhibitors Reception

### Tuesday, March 6

6:30 am	Registration Desk Opens
7:00 am	Continental Breakfast
7:00 am	Exhibits Open
8:15 am	Welcome and Opening Remarks, Mr. Robert J. Arnold, Technical Advisor, 46th Test Wing, Eglin AFB, FL
8:45 am	Symposium Keynote Speaker, Maj Gen Michael C. Kostelnik, USAF, Commander, Air Armament Center, Eglin AFB, FL
9:15 am	Navy Compatibility Speaker, Rear Admiral Timothy L. Heely, USN, Commander, Research Engineering Group, Naval Air Systems, Command, Patuxent River, MD
9:45 am	Army Compatibility Speaker, (Invited) Mr. Barry Basket, Director, Aviation Missile, Research, Development and Engineering Center, Redstone Arsenal, AL
10:15 am	Break in Exhibit Area
10:45 am	Air Force Compatibility Speaker, Ms. Judy Stokley, Program Director, Air-to-Air Joint Systems, Program Office Air Armament Center, Eglin, AFB, FL
11:15 am	Administrative Remarks – Mr. Robert J. Arnold
11:30 am	Lunch – Guest Speaker, Rear Admiral John V. Chenevey, USN, Program Executive Officer, Strike Weapons and Unmanned Aviation, Naval Air Systems Command, Patuxent River, MD

*During the afternoon two groups of simultaneous paper presentations*

#### Group I – Aerodynamics

1:00 pm	Session I: Aeromechanical Chair: Dr. Alexis Cenko Professor United States Naval Academy
<b>PRESENTATION OF PAPERS</b>	
1:15 pm	Active Flow Control Of Weapons Bay Acoustic Environments – Current Status
1:45 pm	Use of Virtual Store Separation Computer Simulation During the Mixed Store Separation Evaluation on the U.S. Navy F/A-18 Aircraft
2:15 pm	Weapon bay aerodynamics – Wind-tunnel trials and CFD modeling by DERA UK
2:45 pm	Break in Exhibit Area
3:15 pm	46TW/SKE Store Separation Experience with the B-1B
3:45 pm	Simulated the Carriage and Release of an GBU-27 from an F-15E using Computational Fluid Dynamics
4:15 pm	USAF/RAAF F-111g Small Smart Bomb Flight Test Program
4:45 pm	F-111 / Small Smart Bomb Trajectory Predictions for Safe Separation Analysis using Computational Fluid Dynamics

#### Group II – Structures & Physical Integration

1:00 pm	Session II: Structural Dynamics Chair: Dr. William Dyess Executive Director, Air Force SEEK EAGLE Office
<b>PRESENTATION OF PAPERS</b>	
1:15 pm	Parametric Approach To Flutter Clearance Of Aircraft With External Store
1:45 pm	Limit Cycle Oscillation Characteristics of F-16 Aircraft with External Stores
2:15 pm	F-16 Aeroelastic Flight Testing: Impact On The Operational Fleet
2:45 pm	Break in Exhibit Area
3:15 pm	F/A-18 / AIM-132 ASRAAM and AIM-9 Sidewinder Flutter Testing
3:45 pm	RNLAF /NLR flight test for certification of Lockheed Martin Overseas Corporation Enhanced Targeting pod and BAE SYSTEMS Falcon Owl Navigation pod.
4:15 pm	F-16 Limit Cycle Oscillation Testing With Asymmetric Stores
4:45 pm	F-16 / MA-31 Captive Loads Calculations using Computational Fluid Dynamics

## Symposium Focus

Since 1972, the development of analysis tools to support the integration of stores on aircraft has been jointly shared by the Air Armament Center, Eglin AFB FL; the Naval Air Systems Command, Patuxent River MD; and the Army Missile Command, Red Stone Arsenal, Huntsville, AL. Over the years, these organizations have jointly participated in national and international symposiums, providing opportunities for the exchange of ideas on the core engineering disciplines that go directly into their tool development. The International Test and Evaluation Association (ITEA) seeks to continue its long association with the aircraft-stores compatibility symposiums by sponsoring this 12th Aircraft-Store Compatibility Symposium and Workshops.

5:00 pm	Exhibits Close
5:30 pm	Registration Desk Closes
7:00 pm	Dinner – Guest Speaker General (Ret.) Charles Horner, USAF, Former Commander-In-Chief of North American Aerospace Defense Command and the U.S. Space Command, and commander of Air Force Space Command

### Wednesday, March 7

6:30 am	Registration Desks Opens
7:00 am	Continental Breakfast
7:00 am	Exhibits Open
8:00 am	<i>Two groups of simultaneous paper presentations continue</i>

#### GROUP I – Aerodynamics

8:00 am	Session I: Aeromechanical Chair: Dr. Alexis Cenko Professor, United States Naval Academy
8:15 am	Lessons Learned: Limitations of Modern Tools and Applications
8:45 am	F-16 / BRU-57 Initial Separation Testing with the MK-83
9:15 am	Airborne Separation Video Government Suitability Evaluation
9:45 am	Break in Exhibit Area
10:15 am	Enhanced Weapons Integration Capabilities Using a New Captive Trajectory Simulation Wind Tunnel Model Support System
10:45 am	Unstructured Grid CFD Simulation Of Aircraft Weapons Bay Aeroacoustics & Store Separation
11:15 am	Grid Based Approach To Store Separation

#### GROUP II – Structures & Physical Integration

8:00 am	Session III: Physical Integration Chair: Dr. Moshen Mahmoud AMRDEC, USA
8:15 pm	Advanced Subminiature Telemetry (AST) System
8:45 pm	CASSAS Scale Model Test Image Pre-Processing
9:15 pm	Aircraft Store Interface Manual (ASIM)
9:45 am	Break in Exhibit Area
10:15 am	The Evolution of Computerized Physical Fit
10:45 am	Factors Effecting MAU-12 Ejector Rack Performance
11:15 am	The Technical Issues Associated With Integrating An Aircraft On-Board, Stores Compatible, High Pressure Air Compressor System For Pneumatic Ejection And Release Systems

11:45 am	Lunch – Guest Speaker (Invited) Maj Gen (Ret) Stephen M. McElroy, USAF, Raytheon Corporation, Tuscan, AZ
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1:00 pm *Two groups of simultaneous paper presentations continue*

### Group I - Aerodynamics

1:00 pm	Session I: Aeromechanical Chair: Dr. Alexis Cenko Professor United States Naval Academy
1:15 pm	Weapons Bay Acoustic Predictions Using a Multi-Scale Turbulence Model
1:45 pm	Applications of Engineering- Level and Intermediate-Level Methods for the Modeling of Missile Aerodynamic Loads and Launch Separation Dynamics for the F-22/AIM-9M Integration Task
2:15 pm	Innovations of the SUU-25F/A Flare Dispenser Pod Flight Test Program on the U.S. Navy F/A-18 Aircraft
2:45 pm	Break in Exhibit Area
3:15 pm	A-10A Combat Fuel Tank Flying Quality Investigation
3:45 pm	Applied Computational Fluid Dynamic Investigation of Store Damage During Carriage on the F-16
4:15 pm	The F-22 Tumbling Bodies Simulation – A Case Study in the Integration of Test, Analysis, and Computation
4:45 pm	F-111 / Small Smart Bomb Trajectory Predictions for Safe Separation Analysis using Computational Fluid Dynamics

### Group II - Structures & Physical Integration

1:00 pm	Session IV: Integration Chair: Mr. Tim O'Keefe Raytheon Southeast Regional Director
1:15 pm	Probability of Aircraft Tactical Hazards (PATHIV)
1:45 pm	Aircraft Stores Compatibility– Continuing the Product Versus Process Debate
2:15 pm	F/A-18E/F Missile Noise and Vibration (N&V) Environment
2:45 pm	Break in Exhibit Area
3:15 pm	A-10 Aircraft Weapon Delivery Improvements
3:45 pm	Optimized Weapon Release Sequence to Minimize Tactical Aircraft Development Risk
4:15 pm	Video-Theodolite Vs Television Optical Scoring Systems Time Space Position Information
4:45 pm	Certification of Aircraft Stores Management Software Modifications
5:15 pm	Error Measurement, A Multi-Dimensional Approach

5:15 pm Exhibits Close  
5:30 pm Registration Desk Closes  
Evening at leisure

### Thursday, March 8

6:30 am Registration Desk Opens  
7:00 am Continental Breakfast  
7:00 am Exhibits Open

### Lodging

A block of rooms has been set aside at the Sandestin Resort at a special rate of \$85 per night, for a single. Make your reservations with the hotel directly at 850-267-8000 requesting the ITEA rate.

### Directions

**From Pensacola Airport:** Take College or Airport Road west to 9th Ave. Turn left (south) on 9th Ave. and follow it to Highway 98. Turn left (east) on Hwy 98 and cross the Pensacola Bay Bridge. Continue east on Hwy 98 until you reach the Sandestin Resort. You will cross the Brooks Bridge in Fort Walton Beach (after approximately 45 miles) and the Destin Bridge (after another 10 miles). Twelve miles after the Destin Bridge watch for the Silver Sands Shopping Center on the left. The Sandestin Resort is one mile past the shopping center on the bay (north) side.  
**From Okaloosa County Regional Airport/Eglin AFB:** Turn left (south) from the airport parking lot onto Hwy 85 (Eglin Parkway). Stay on Eglin Parkway south through Fort Walton Beach. Follow the signs to beaches and Hwy 98. At Hwy 98, turn left (east), cross the Brooks Bridge, and continue as described above.

### Exhibits and Sponsorship

Space is available for exhibits. One full registration is included with each six by six foot table for \$825. Two complimentary registrations are included with a ten foot booth space for \$1,300. For exhibit information contact Milt Strickland, 505-858-1925 or Lt Col David Lockett, 850-882-9711.

8:00 am *Two groups of simultaneous paper presentations continue*

### Group I - Aerodynamics

8:00 am	Session I: Aeromechanical Chair: Dr. Alexis Cenko Professor, United States Naval Academy
8:15 am	An Automated Approach to Post-Flight Simulation Analysis and Verification Using A Stochastic Optimization Approach
9:15 am	Viscous CFD Analysis of Wing-Tip Mounted Stores To Determine Loading on the F16 Wingtip
9:45 am	Break in Exhibit Area
10:15 am	Comparison of Time-Accurate CFD and Engineering Methods for the JDAM Separation from an F-18C Aircraft
10:45 am	The CFD Experiences Of Shared Reconnaissance Pod For Safe Aircraft/Store System Integration
11:15 am	Monte-Carlo Simulation of Store Trajectories on a Beowulf Cluster
11:45 a.m.	Flight Test and Computational Fluid Dynamics Results For a Standoff Weapon Store Separation Transient Event

### Group II - Structures & Physical Integration

8:00 am	Session IV: Integration and Operations Chair: Mr. Tim O'Keefe Raytheon Southeast Regional Director
8:15 am	F/A-18 Electric Fuzing Instrumentation System
9:15 am	Advances in M&S Technology Propels Aircraft-Stores EMC Characterization into 21st Century
9:45 am	Break in Exhibit Area
10:15 am	Development and Testing of the F/A-18 MIL-STD-1760 Store Umbilical
10:45 am	The Use of Physics-Based Models to Predict Fragmentation of Ordnance
11:15 am	Airborne Expendable Countermeasure Certification Techniques
11:45 am	Systems Engineering Investigation of Navy Electrical Bomb Fuzing
12:15 p.m.	Developing an Integrated Test Information System at Arnold Engineering Development Center

12:30 pm Lunch  
1:30 pm Two Afternoon Workshops

1:30 pm	Work Shop I: Aircraft-Stores interface Standard (ASIS), Co-Chaired by Mr. Ed Stricklin (USAF), and Mr. Neil Siegel (USN)	1:30 pm	Work Shop II: Integration of the Store Certification Process and the Aircraft Operational Flight Program, Co-Chaired by Mr. Tom Devenny and TBD
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3:00 pm Break in Exhibit Area  
3:30 pm Exhibits Close  
4:00 pm Registration desk Closes  
5:00 pm Symposium Adjourns

Corporate sponsorship is available for a fee of \$500. Each sponsor may submit a company capability description, which will be distributed with attendee's welcome folder. In addition, names of the sponsors will be displayed throughout the event.

### For More Information

#### Symposium Chair

Mr. Robert J. Arnold | Technical Advisor | 46th Test Wing | Eglin AFB FL

#### Technical Program Chair

Dr. William W. Dyess, Jr. | Executive Director | Air Force Seek Eagle Office | Eglin AFB FL

#### Program Coordinators

Mr. Neal Siegel | SiegelNA@navair.navy.mil | 301-342-4390  
Mr. Ed Stricklin | robert.stricklin@eglin.af.mil | 850-882-3017 ext. 2639

#### Exhibits

Milt Strickland | mh-strickland@itea.com | 505-821-3591  
Lt Col David Lockett | david.lockett@eglin.af.mil | 850-882-9711 ext. 3377

#### Registration

Jean Shivar | jean@itea.org | 703-631-6121 | 703-631-6221 (fax)



## International Test and Evaluation Association

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### ITEA Symposium

#### Aircraft-Stores Compatibility Symposium

March 5-8, 2001  
Destin, Florida

### Registration: March 2001 Aircraft-Stores Compatibility

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E-Mail \_\_\_\_\_ ☐ Please check if you require special assistance  
Company/Organization World Wide Web URL (if applicable) \_\_\_\_\_

#### Symposium Registration Fees

Before February 2 ITEA members\* \$315/others \$375

February 2-16 ITEA members\* \$340/others \$400

After February 16 ITEA members\* \$390/others \$450

\*Persons joining ITEA and paying the \$45 annual fee (\$65 for overseas addresses) are entitled to the member rate.

Full-time students (full registration, excluding lunch, \$10) Specify school \_\_\_\_\_ \$ \_\_\_\_\_

One-day program (ITEA members \$205/others \$225) ☐ March 6 ☐ March 7 ☐ March 8 \$ \_\_\_\_\_

Non-registrant lunch tickets (\$20 each, specify quantity) ☐ March 6 ☐ March 7 ☐ March 8 \$ \_\_\_\_\_

Non-registrant dinner tickets (\$35 each, specify quantity) ☐ March 7 \$ \_\_\_\_\_

#### Special fees for presenters:

Panel Chairs (complimentary) \$ \_\_\_\_\_

Panelists and Poster Paper Presenters (complimentary on day of presentation; full registration \$205) \$ \_\_\_\_\_

#### ITEA Annual Membership

\$45 domestic, \$65 overseas (includes one-year subscription to *The ITEA Journal of Test and Evaluation*) \$ \_\_\_\_\_

#### TOTAL PAYMENT

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☐ Credit Card (circle one and give account number)   

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Signature \_\_\_\_\_ Date \_\_\_\_\_

Mail or fax form and payment to the International Test and Evaluation Association, 4400 Fair Lakes Court, Suite 104, Fairfax, Virginia, 22033-3899,  
Telephone: 703-631-6220, fax: 703-631-6221, e-mail: [itea@itea.org](mailto:itea@itea.org). Persons requesting cancellation prior to February 16 will receive a full refund less a \$30 cancellation fee.  
Cancellations after February 16 are subject to a \$100 cancellation fee. For further registration information, contact Jean Shivar, 703-631-6121; [jean@itea.org](mailto:jean@itea.org)